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July 31, 1965

Monthly letter progress report - Contract

LOG OF ACTIVITIES

Thursday, July 1, 1965

Initiated with [] a draft of report on projection lamp study. (Principal Associate, 1 day, Task II, item 5)

Friday, July 2, 1965

Continued work on draft of report on projection lamp study. (Principal Associate 1 day, Task II, item 5)

Tuesday, July 6, 1965

Prepared existing computer program for computation of floor slab frequencies for the evaluation study of structural concepts for submicron measuring. (Senior Associate, $\frac{1}{2}$ day, Task II, item 1)

Friday, July 9, 1965

Continue analysis of data on projection lamp study and add data sheet on xenon lamps. (Principal Associate, 1 day, Task II, item 5)

Monday, July 12, 1965

Continue work on projection lamp study. Review calculation of screen brightness for tungsten lamps. (Principal Associate, 1 day, Task II, item 5)

Tuesday, July 13, 1965

Review lamp calculations with [] Review discrepancies in manufacturer's data and effect on screen brightness calculations. (Principal Associate, 1 day, Task II, item 5)

Wednesday, July 14, 1965

Review calculation of screen brightness for xenon and mercury lamps. Continue work on preparation of existing computer program for floor slab frequency determination. (Principal Associate, 1 day; Senior Associate $\frac{1}{2}$ day. Task II, items 1 and 5)

STAT

July 31, 1965

Log of Activities (Continued)Friday, July 16, 1965

Verify with Computer Lab [] the preparation of the existing computer program for computation of floor slab frequencies. (Senior Associate $\frac{1}{2}$ day, Task II, item 1)

STAT

Monday, July 19, 1965

Complete initial draft of report on projection lamp study and prepare summary tabulation and data sheets for submission for comment on format. (Principal Associate, 1 day, Task II, item 5)

Thursday, July 22, 1965

Complete verification of computer program and authorize computation. (Senior Associate, $\frac{1}{2}$ day, Task II, item 1)

Monday, July 26, 1965

Final review with [] of draft of report on projection lamp study. Review screen brightness calculations and attempt resolution of discrepancies in data. Review computer data and initiate draft of report on floor slab frequencies. (Principal Associate 1 day; Senior Associate $\frac{1}{2}$ day, Task II, items 1 and 5.)

STAT

Tuesday, July 27, 1965

Review of data obtained on automatic target recognition at request of Technical Representative of Contracting Officer. Initiate draft of report of review. Continue work on draft of report on floor slab frequencies. (Principal Associate 1 day; Senior Associate $\frac{1}{2}$ day, Task II, items 4 and 5.)

Wednesday, July 28, 1965

Continue work on report on floor slab frequency analysis. (Senior Associate $\frac{3}{4}$ day, Task II, item 1.)

Thursday, July 29, 1965

Complete initial draft of report on floor slab frequency analysis. (Senior Associate, 5 hours, Task II, item 1)

Friday, July 30, 1965

Complete initial draft of report on data obtained on automatic target recognition. Review and revise draft of report on floor slab frequency analysis. (Principal Associate, 1 day; Senior Associate $\frac{1}{2}$ day, Task II, items 4 and 5.)

STAT

Monthly letter progress report (Continued)

Comments on Status

Task I - Item 1 Special Investigations

There were no specific requests for visitations this period.

Task II: There are 3 items on this Task and comments will be made only on the items under consideration this period.

Task II - Item 1 - "Submicron Measurement Error Analysis"

The 4th preliminary technical report was prepared and will be submitted under separate cover. The report presents results of a computer analysis of building floor vibration frequencies. The fundamental mode of 15.6 cps was unexpectedly low compared to the manual computation and estimate of 20 to 65 cps in report No. 3. This important result deserves further verification since it will definitely affect the selection of vibration isolation mounts for a submicron measuring machine such as the "High Precision Stereo Comparator" under study by other contractors. It is planned that more exact data on the floor slab construction will be obtained and compared to the data used for computation. If warranted, a rerun of the computer computation will be made. With good input data, the frequencies computed by the computer program will be accurate to $\pm 10\%$.

Task II - Item 2 - "Signal Strength of Broadcast Radiation of Closed-Circuit TV"

This item has been inactive since January, 1965, pending a decision on a recommended exploratory test program.

Task II - Item 4 - "Automatic Target Recognition"

A report has been prepared and will be submitted under separate cover. The report reviews the data obtained at the request of the Technical Representative of the Contracting Officer on Automatic Target Recognition work at California. This report covers the analytical work and the learning theory. A subsequent report will cover the preprocessing techniques.

STAT

July 31, 1965

Monthly letter progress report (Continued)

Task II - Item 5 - "Lamps for Rear Projection Viewers"

Work on this item is being undertaken jointly by [REDACTED]

[REDACTED]
under subcontract to [REDACTED]
copy of the subcontract is submitted with this report.

A preliminary report was drafted and a concerted attempt was made to resolve discrepancies in manufacturer's data and in the photometric calculations. The discrepancies became evident in comparing screen brightness calculated for tungsten and xenon lamps and the total lumen output of the lamps. The data was inconsistent. A new method of calculating screen brightness was derived based on total lumen output rather than on arc or filament brightness and effective area. It is believed the method will produce more accurate and consistent data. When this has been verified, the report will be revised and submitted. A suggested format for presentation of the data was submitted and the Technical Representative of the Contracting Officer indicated the format was satisfactory.

